AN AERIAL SURVEY FOR BEAVER LODGES

IN THE SAHTU SETTLEMENT AREA

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AN AERIAL SURVEY FOR BEAVER LODGES IN THE SAHTU SETTLEMENT AREA SEPTEMBER 2001

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ABSTRACT

An aerial survey of beaver *(Castor canadensis)* lodges in three study blocks (total area 272 km^2) in the Sahtu Settlement Area was flown in a fixed-wing aircraft after leaf-fall and before freeze-up in late September 2001. One hundred and thirty active lodges were observed, for a density of 48 active lodges per 100 km^2. In addition, 108 inactive lodges (less than 5-yr- old) were recorded, a density of 40 inactive lodges per 100 km^2. Comparison with similar surveys within the same study blocks in 1989 and 1997 indicates that active lodge density has decreased from 58/100 km^2 in 1997, but is still slightly higher than 43/100 km^2 in 1989. The density of active beaver lodges in the Sahtu is still almost double the average recorded in similar surveys flown across the NWT in 1989. Beavers are an abundant furbearer resource that can support increased harvesting levels and bring increased revenue to hunters and trappers in the Sahtu. Continued long-term monitoring of beaver abundance in the Sahtu is warranted and the next survey is recommended for September 2005.

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INTRODUCTION

Trapping continues to be an economically and culturally important activity for people across the Northwest Territories. Within the Sahtu Settlement Area, beaver (*Castor canadensis*) is generally the second most important furbearer; marten *(Martes americanus*) are the most important and typically comprise over 80% of the total fur value from the region. However, in addition to trapping for fur sales, beaver are also harvested to meet domestic needs for both food and fur.

Preliminary results from the Sahtu Harvest Study (Sahtu Renewable Resources Board, Tulita, NT), which estimates total harvest for fur sales and domestic use, indicates that beaver harvest is generally increasing within the region. In 1999, 502 beavers were recorded, with trappers from Fort Good Hope and Tulita accounting for 91% of the total. However, the current level of beaver harvest is below the 1963-1997 annual average of 667 beaver pelts sold by Sahtu trappers (GNWT Fur Records).

A reliable estimate of beaver population trends can be obtained through periodic aerial surveys to monitor numbers of active beaver lodges within pre-set study areas (Poole and Croft, 1990). Estimates of lodge density (lodges/100 km^2) can then be compared with harvest records to provide baseline data for management, e.g., encouraging increased harvest in areas of moderate to high lodge density (Poole and Croft 1990).

Beaver populations have been surveyed in the NWT since 1947 (Boles 1975). Poole and Croft (1990) did the most extensive beaver lodge survey across the western NWT in 1989. This survey included the Sahtu and set up three study areas that were again surveyed by Popko and Veitch (1998) in 1997. Popko and Veitch (1998) repeated the recommendation

of Poole and Croft (1990) that beaver surveys should be flown at 4-year intervals in the Sahtu Settlement Area. The Science Advisory Board of the NWT (1980) also recommended long-term monitoring of beaver population densities.

STUDY AREA

Prior to the 1989 survey, three study blocks (Table 1; Figure 1) were selected by Renewable Resource Officers in collaboration with Hunters and Trappers Associations (now Renewable Resources Councils; RRC's) in Fort Good Hope, Tulita, and Norman Wells (Poole and Croft 1990). Each block was based on local knowledge of beaver occurrence and are therefore important beaver harvesting areas for the three communities.

Table 1. Study blocks for an aerial survey of beaver lodges in the Sahtu Settlement Area.

Community	Study Block Name	Size (km^2)
Fort Good Hope	Ramparts River	83
Tulita	Willow Lake	98
Norman Wells	Oscar Lake	91
Total		272

The blocks vary in size and shape according to their drainage patterns. They are located within boreal forest-taiga along the Mackenzie River valley, which is relatively flat with discontinuous drainage and has soils underlain with permafrost. White spruce (*Picea glauca*) and poplar (*Populus* spp.) are common on well-drained uplands while black spruce (*Picea mariana*) and tamarack (*Larix laricina*) generally occur in lowlands and muskeg. White birch (*Betula* spp.) and willows (*Salix* spp.) occur throughout the river valley.

Forest fires maintain early successional stages of birch, white spruce, and poplar uplands and a mixture of black spruce, tamarack, willows, and shrubs and forbs at various stages of regeneration. Lowlands are typically covered with peat and numerous small ponds, lakes,

bogs, or palsa. Beaver habitat is generally considered to consist of stable water bodies close to stands of deciduous trees (Dennington and Johnson, 1974).

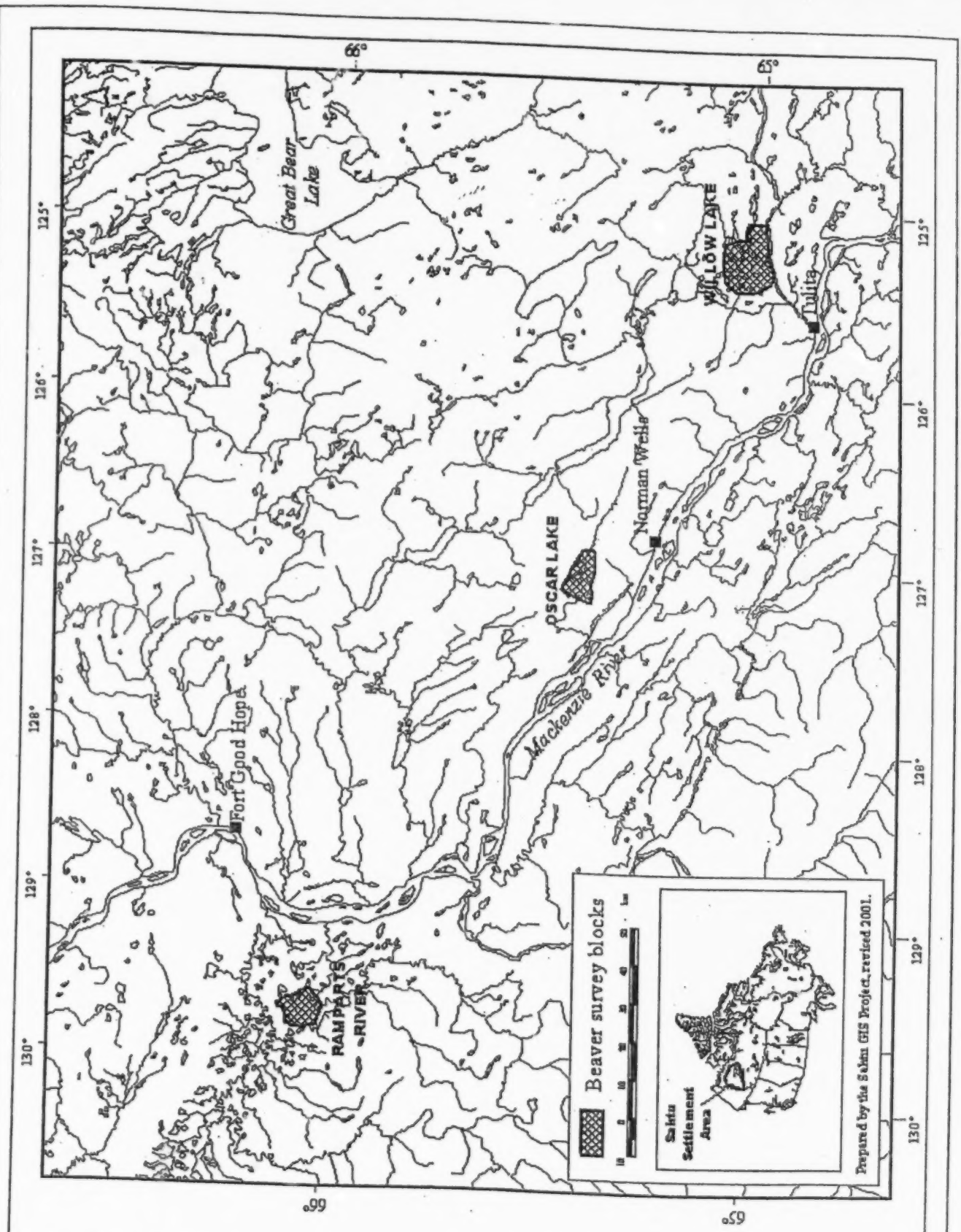

Figure 1. Location of survey blocks for beaver lodges, Sahtu Settlement Area, September 2001.

METHODS

Aerial surveys of beaver lodges are timed to occur between leaf-fall and freeze-up, since this period provides optimal visibility of fresh feed piles on and near the lodges (Payne 1981). We followed the procedures described by Poole and Croft (1990) and repeated by Popko and Veitch (1998). We used a *Maule Lunar Rocket* on floats since this is a maneuverable aircraft capable of short-take-off and landing. Floats allowed for stops in order to minimize observer fatigue and provide increased safety in case of inclement weather or the need for an emergency landing.

The flight crew consisted of an observer and pilot sitting side-by-side. No other passengers or excess baggage were onboard to maintain the aircraft's optimal operating capacity. Navigation was done visually using 1:50,000 National Topographic System topographic maps assisted by a global positioning system (GPS). The observer recorded relevant data (e.g., lodge classification, other wildlife observed, water level, weather conditions) directly onto the maps.

Flight paths followed the shoreline of all ponds, lakes, creeks, and rivers at approximately 100 m above ground and 100 km/h. To ensure correct classification of activity at lodges, the aircraft circled all inactive beaver lodges until the observer was certain there was no fresh activity. The primary criterion for an active lodge is the presence of a fresh feed pile within 150 m of the lodge (Novak 1987). Other criteria used to locate and classify lodges included: sightings of beaver(s), maintained dams, high water levels in ponds, fresh cuttings, or fresh mud on a lodge (Popko and Veitch 1998).

Boundaries of study areas were digitized from the 1:50,000 topographic maps. Area was then calculated in *Arc View* (Environmental Systems Research Institute Inc., Redlands, CA) geographic information system (GIS). Area calculations for all three-study areas were based on the Lambert Conformal Conic projection.

Following Popko and Veitch (1998), lodge density was classified as low (0 – 29 lodges/100 km^2), medium (30 – 59 lodges/100 km^2), or high (> 60 lodges/100 km^2). The average lodge density for beavers across the NWT in 1989 was 26 lodges/100 km^2 (Poole and Croft 1990).

All data from the survey were provided to the *Sahtu GIS Project* in Norman Wells for inclusion in the project's central information database and mapping. Survey results and management recommendations will be presented to the Sahtu Renewable Resources Board (Tulita, NT) and to the RRC's in Fort Good Hope, Tulita, and Norman Wells.

RESULTS

Warm temperatures through early September delayed leaf-fall until the third week of the month. On 25 and 26 September, weather conditions were ideal: winds light (≤15 km/h), temperature 1^0 C to 20^0 C, no precipitation, and generally sunny on 25 Sep and partially overcast on 26 Sep. Light contrast was excellent and sign of beaver activity was clearly visible. Sunrise was at 0820 h and sunset at 2018 h. Snowfall and freeze-up on smaller lakes and ponds began 30 September 2001.

Total flying time was 12.2 h, of which 7.9 h (65%) were flown within blocks and 4.3 h (35%) were for travel to and from the study blocks (ferry time). We surveyed for 3.4 h at Willow Lake, 2.3 h at Oscar Lake, and 2.2 h at Ramparts River (Table2). The average search effort was 1.7 min/km^2. Lodges were located and classified at an average rate of 2.6 min/lodge.

We observed 130 active lodges and 82 inactive lodges (Table 3). A high density of active beaver lodges was found at Ramparts River (82 lodges/100 km^2), medium at Willow Lake (41 lodges/100 km^2), and low at Oscar Lake (24 lodges/100 km^2). The average density of active lodges at new locations compared with the 1997 survey was 23 lodges/100 km^2. New location lodge density was 13 lodges/100 km^2 at Willow Lake, 14/100 km^2 at Willow Lake, and 46/100 km^2 at Ramparts River. Density of inactive lodges was low at Oscar Lake (16 lodges/100 km^2) and moderate at both Ramparts River (51 lodges/100 km^2) and Willow Lake (52 lodges /100 km^2; Table 3).

Other wildlife seen were: 9 moose (*Alces alces*), including one calf, three bulls, and five cows; 1 black bear (*Ursus americanus*); 1 goshawk (*Accipiter gentilis*); numerous tundra swans (*Cygnus columbianus*), and a few dabbling and diving ducks, of which most were greater and lesser scaup (*Aythya spp*). Muskrat (*Ondatra zibethicus*) dens were not as abundant near Oscar Lake as was reported by Popko and Veitch (1998) for the 1997 survey.

Table 2. Active and inactive beaver lodges found in an aerial fixed-wing aircraft survey of three study blocks in the Sahtu Settlement Area, NWT, September 2001.

	Survey Block				
	Willow Lake	Oscar Lake	Ramparts	Total	Mean
Area surveyed (km^2)	98	91	83	272	91
Date surveyed	25-Sep-01	25-Sep-01	26-Sep-01	2 days	
Survey time	3 h 24 min	2 h 18 min	2 h 12 min	7 h 54 min	2 h 38 min
Search effort (min/km^2)	1.8	1.5	1.6	n/a	1.7
Ferrying time	1 h 12 min	48 min	2 h 18 min	4 h 18 min	1 h 26 min
Number of active lodges	40	22	68	130	n/a
Active lodge density/100 km^2	41	24	82		48
Number of new lodges since 1997	13	13	35	61	20
New lodge density/100 km^2	13	14	42		22
Number of inactive lodges (<5-yr-old)	41	11	30	82	27
Inactive lodge density/100 km^2	42	12	36		30
Number of active lodges per hour flown	12	9	23		15
Number of active & inactive lodges (<5-yr-old) per hour flown	23	13	34		23

Table 3. A comparison among September 1989, October 1997, and September 2001 aerial fixed-wing aircraft surveys for beaver lodges within the Sahtu Settlement Area, NWT.

Survey block	Survey year	Area (km^2)	Inactive Lodges (N)	Inactive Lodges (#/100 km^2)	Active Lodges (N)	Active Lodges (#/100 km^2)	Population Trend (1989-2001)	Population Trend (1997-2001)
Oscar Lake	1989[a]	92	14	15	23	25	4% stable[b]	9% stable
	1997[c]	92	30	33	20	22		
	2001	91	15	16	22	24		
Ramparts	1989	76	22	29	44	58	48% increase	5% stable
	1997	76	30	40	65	86		
	2001	83	42	51	68	82		
Willow Lake	1989	98	39	40	49	50	18% decrease	41% decrease
	1997	98	87	89	68	69		
	2001	98	51	52	40	41		
Sahtu Total	1989	266	75	28	116	43	14% increase	17% decrease
	1997	266	147	55	153	58		
	2001	272	108	40	130	48		
NWT Total[b]	1989	2059	289	14	545	26		

[a] Data from Poole K. and B. Croft (1990), Beaver surveys in the western NWT, September - October 1989.
[b] Less than 10% change considered stable
[c] Data from Popko R. and A. Veitch (1998), An aerial survey for beavers in the Sahtu Settlement Area October 1997.

DISCUSSION

Survey accuracy for beaver lodges varies considerably with habitat type, weather, observer fatigue, visibility, and aircraft speed, altitude, and type (Novak 1987). Fixed-wing aerial surveys have found ≥90% of lodges located by ground survey (Swenson et al. 1983; Novak 1987). The timing and design of our survey was based on Poole and Croft's (1990) recommendation of late fall surveys at 4-year intervals in permanent study blocks. We also recommended a 4-year survey interval for the Sahtu (Popko and Veitch 1998).

Survey conditions were ideal and any bias in results cannot be attributed to inclement weather, leaf obstruction, or snow buildup on lodges. Future surveys for beavers in the Sahtu should continue to be done between leaf fall and freeze up. The *Maule Lunar Rocket* has proven to be a very suitable, locally available, and affordable aircraft that meets all requirements. The cost per hour for the *Maule* is about 25% of that for a *Bell 206 Jet Ranger* helicopter. We suggest that the accuracy, time expenditure, and cost for this survey are reasonable for long-term monitoring of trends in beaver abundance.

The average density of active beaver lodges located during the survey is considerably higher than the 26 lodges/100 km^2 reported for 14 surveyed blocks (2059 km^2 total area) across the NWT by Poole and Croft (1990). Active lodge density was down in 2001 from the 58/100 km^2 recorded for the same blocks in 1997 (Popko and Veitch 1998); however, densities in the Sahtu generally continue to meet or exceed expected densities for northern muskeg (24/100 km^2) provided in a summary of beaver in North America by Novak (1987). The highest density observed in our survey at Ramparts River (82/100 km^2) still falls well short of the 390/100 km^2 recorded in aspen parkland habitat in Alberta (Novak 1987).

The results for Ramparts River and Oscar Lake study blocks were virtually identical to 1997, with both showing only small increases in density. In contrast, active lodge density at Willow Lake decreased by 28/100 km^2 over the four years. Water and food supply limits the distribution of beaver with a food preference for poplar, alder, birch, and willow (Boles 1975). When quantities of available preferred feed near a beaver lodge decreases, the colony often relocates to find a better food supply. Beavers in the Sahtu rely upon their feed piles as their main source of food for up to 8 months per year under the ice. Fifty-three percent of active lodges were at the same location as in 1997; however, 63% of active lodges documented in 1997 were inactive during this survey, with many of the associated ponds in the process of conversion to wet meadows. Forty percent of the 153 active lodges from 1997 were at new locations in 2001, including 59% at Oscar Lake, 51% at Ramparts River and 33% at Willow Lake.

The average density of inactive beaver lodges less than 5-yr-old decreased by 27% between 1997 and 2001 in the 3 study blocks. This decline of inactive beaver lodge density was greatest at Oscar Lake (52%) followed by Willow Lake (42%). The number of inactive lodges increased at Ramparts River (28%).

Since beaver harvesting in the study areas remains low, we suggest that lodge abandonment has occurred as a result of over-use and subsequent habitat deterioration.

Relative changes in water levels between 2001 and 1997 for each study area were also noted. The water level in Oscar Lake appeared higher; while at Ramparts River it was

about the same. Generally lower water levels at Willow Lake may be a result of fewer dams associated with active beaver lodges, thus affecting the local water table.

Most of the areas around Oscar and Willow Lakes have not been burned by forest fire in the last four decades; in contrast, the entire Ramparts River study block burned between 1964-1975. Therefore, it is not surprising that our general impression is that the two study blocks with older succession stages have less high-quality available feed than does the Ramparts River block.

Increased beaver harvesting in the Sahtu can be encouraged at this time. Trappers can make use of aerial beaver lodge surveys to efficiently and economically manage local beaver populations. After completion of our survey, summaries were provided to interested trappers in an effort to encourage beaver harvesting. We feel that there is considerable potential benefit of beaver lodge surveys to local trappers – for example, aerial surveys to inventory beaver lodges were flown in northern Ontario and consequently increased trappers' harvests from 14 to 109% over the subsequent 5 years (Novak 1987).

Increased beaver harvest management can be achieved by expanding survey areas to cover other beaver harvesting areas and by involving trappers as observers for their trapping areas. Currently, the relatively low beaver harvest level in Sahtu suggests that continued monitoring of population trend by aerial surveying of beaver lodges within our 3 study blocks is sufficient for current management requirements. Accurate assessment of beaver population size from aerial lodge surveys requires estimates of colony size, composition, and survey accuracy (Novak 1987). Detailed population assessment for intensive beaver management is not required unless the demand for beaver increases substantially.

The historical annual furbearer harvests in the Sahtu are recorded in the GNWT's *Game Licensing System*, based on fur sales maintained in *Individual Trappers Records*. In addition, the Sahtu Settlement Harvest Study (SRRB) includes furbearers harvested for both domestic and commercial use within the settlement area. A comparison between the two data sets shows 23% more beavers were recorded in the Harvest Study in 1997. This is an absolute minimum difference, since 1997 was a preliminary year of data collection for the Harvest Study and Deline was not a participant in the study. A reliable estimate of the total number of beaver harvested across the Sahtu may not be available until the first 5 years of the Harvest Study is completed at the end of 2003.

Management of furbearers and furbearer harvest in the Sahtu is outlined in Appendix 1 and an overview of fur management programs is given in Appendix 2. The beaver trapping season in the Sahtu is open from 15 October to 31 May, except for the Fort Good Hope *Registered Group Trapping Area*, which is open from 20 October to 5 June. These are some of the longest open seasons in North America. All 3 study blocks are open to trapping and a large portion of the total harvest of beavers in the Fort Good Hope area is taken in or near the Ramparts River study block between March and June (Wilfred Jackson, pers. comm.). The traditional spring harvest of beaver by shooting with .22 caliber rifle is an efficient method of obtaining primarily 2-yr-old non-breeding males along rivers and streams (Boles 1975). Although the quality of these shot pelts taken in spring is lower than prime beaver trapped under the ice, spring harvesting of beaver is an important local cultural tradition, and is a valuable beaver management technique. To maintain healthy productive beaver populations the primary management tool is manipulation of harvest level by adjusting season length, harvest method, or quota (Hawley 1974). The current low

level of beaver pelt sales in the Sahtu is likely a result of changes in harvesting effort related to their market value and alternative income sources for trappers, rather than being a result of changes in the numbers of beaver available.

Some beaver populations can support a harvest rate of 25-30%, where whole colonies are removed on a multiple year rotation (Hatler 1988). Recommended rates of annual harvest per active lodge vary from 0.5 to 2 beaver per lodge relative to broad vegetation types and colony size. Harvest may prevent the overuse of food supply, reduce competition for food and space, or increase reproduction rates and the survival of young beaver (Boyce 1981; Payne1984). In studies of traditional environmental knowledge, hunters and trappers also state that wildlife harvesting is necessary to achieve productive populations that can provide sustainable benefits to communities (Hara 1980). Beavers in Sahtu are an abundant, valuable, and currently under-harvested renewable resource. Beaver harvest in the Sahtu Settlement Area could be increased substantially.

MANAGEMENT RECOMMENDATIONS

A) Population Monitoring

1. Continued long-term monitoring of active beaver lodges should be maintained by repeating this survey after leaf-fall and before freeze-up during late September 2005.

2. The 3 current study areas for beaver inventory should be maintained. The SRRB and DRWED should consider the possibility of additional study areas outside the Mackenzie River Valley (e.g., Deline and Colville Lake areas).

3. Boundaries of survey blocks and locations of beaver lodges from this and previous surveys should be digitized and entered into the database of the Sahtu GIS Project.

B) Resource Development

4. Annual trapper training workshops should be held in each of the Sahtu communities. These workshops would promote increased harvesting of prime beaver (e.g., trapping under-ice versus open-water harvesting) and pelt preparation. Workshops should be lead by a qualified Trapper Training Instructor (e.g., *Fur Institute of Canada*) from the Sahtu.

5. The Government of the NWT and the SRRB should promote and assist people participating in production of value-added fur products (e.g., crafts, northern clothing, etc.). This would promote an increase in sustainable harvest of beaver and provide

greater economic return to a variety of people in the communities (e.g., trappers, clothing designers, craft producers, and retailers).

ACKNOWLEDGEMENTS

The Renewable Resources Councils in Tulita, Fort Good Hope, and Norman Wells provided their approval and support for this survey.

Blair Jensen, pilot and owner of *Ursus Aviation* (Tulita, NT), capably flew the airplane during the survey flights.

Jody Snortland, Executive Director, and Janet Bayha, Harvest Study Co-ordinator, Sahtu Renewable Resources Board (Tulita, NT), provided preliminary data on beaver harvest levels in the Sahtu from the Sahtu Settlement Harvest Study.

Keith Hickling, Manager, Fish and Wildlife, RWED, Norman Wells, provided access to and information from the GNWT's Fur Records.

PERSONAL COMMUNICATIONS

Hickling, Keith	Manager, Fisheries and Wildlife, DRWED, GNWT, Norman Wells, NWT, November 2001.
Jackson, Wilfred	Hunter and trapper, Fort Good Hope, NT. September 2001.
Pappas, Angello	Western Canadian Raw Fur Auction Sales Ltd., Vancouver, BC, September 2001.
Rossouw, Francois	Traditional Economy & Fur Management Co-ordinator, DRWED, GNWT, Yellowknife, November 2001.

LITERATURE CITED

Boles, B. 1975. Background study for furbearer management in the Mackenzie Valley, NWT. Report prepared for the Environmental-Social Program, Northern Pipelines, Canadian Wildlife Service, Ottawa, ON. 231 pp.

Boyce, M.S. 1981. Beaver life–history responses to exploitation. J. Appl. Ecol. 18: 749-753.

Dennington, M. and B. Johnson. 1974. Studies of beaver habitat in the Mackenzie Valley and Northern Yukon. Report No. 74-39. Environmental-Social Program, Northern Pipelines, Canadian Wildlife Service, Ottawa, ON. 69 pp.

Government of Canada. 1993. Sahtu Dene and Metis comprehensive land claim agreement, Volume 1. Indian Affairs and Northern Development, Ottawa, ON. 125 pp.

Hara, H. S. 1980. The Hare Indians and their world. Canadian Ethnology service paper No. 63, Nat. Mus. of Man, Mercury Series, Nat. Mus. Can., Ottawa, ON. 301 pp.

Hatler, D. 1988. Beaver management guidelines in British Columbia. B.C. Min. Environ. Wildl. Br., Victoria, BC. 6 pp.

Hawley, V. 1974. Northern Mackenzie District Beaver Management Plan, Unpubl. Canadian Wildlife Service Report Ottawa, ON. 46pp.

Novak, M. 1987. Beaver. Pp. 282-312 *in* M. Novak, J. A. Baker, M. E. Obbard, and B. Malloch (Eds.) Wild Furbearer Management and Conservation in North America. Ontario Trappers Association, Toronto, ON. 1150 pp.

Payne, N. F. 1981. Accuracy of aerial censusing for beaver colonies in Newfoundland. J. Wildl. Manage. 45: 1014-1016.

Payne, N. F. 1984*b*. Reproductive rates of beaver in Newfoundland. J. Wildl. Manage. 48: 912-917.

Poole K. and B. Croft. 1990. Beaver surveys in the western NWT, September-October 1989. Dept. Renewable Resources Man. Rep. No. 34, Yellowknife, NT. 15 pp.

Popko R. and A. Veitch. 1998. An aerial survey for beavers in the Sahtu Settlement Area October 1997. Dept. of Resources, Wildlife, and Economic Development Man. Rep. No. 108, Norman Wells, NT. 21 pp.

Science Advisory Board of the Northwest Territories, 1980. Fur, fish, and Game of the Northwest Territories – Report No.2 to the Legislative Assembly of the Northwest Territories, Yellowknife, NT. 40 pp.

Swenson, J. E. , S. J. Knapp, P. R. Martin and T. C. Hinz. 1983. Reliability of aerial cache surveys to monitor beaver population trends on prairie rivers in Montana. J. Wildl. Manage. 47: 697-703.

APPENDIX 1. Management of trapping in the Sahtu Settlement Area.

The Sahtu Settlement Area (SSA) covers approximately 283,000 km^2 of the western NWT as the land claim area in *The Sahtu Dene and Metis Comprehensive Land Claim Agreement* (1993) signed by Sahtu Dene and Metis and the Governments of the Northwest Territories (GNWT) and Canada. It identifies the *Sahtu Renewable Resources Board* (SRRB) as the main instrument for wildlife management in the settlement area.

The SRRB collects monthly harvest data on all wildlife harvested by Sahtu beneficiaries under the terms of the Sahtu Settlement Harvest Study. The five-year study (1998-2002) will determine the Sahtu Minimum Needs Level for participants of the land claim. The land claim also guarantees priority resource allocation to participants of the claim within sustainable limits – "when the Sahtu Needs Level is greater than the total allowable harvest, the participants shall be allocated not more than the total allowable harvest." (sec. 13.5.3 *Sahtu Dene and Metis Comprehensive Land Claim Agreement*)

The *NWT Wildlife Act and Trapping Regulations* regulate beaver harvesting in the Sahtu, which is enforced by the GNWT. Current limitations on beaver harvest include: humane trapping techniques, an open season from 15 October to 5 June, and trapping licenses: *General Hunting License, Special General Hunting License, Special Trapping License*, and a *Registered Group Trapping Area* for the community of Fort Good Hope. Community endorsement for a trapping license limits participation. Export of any wildlife parts from the NWT, including beaver pelts; requires a *NWT Wildlife Export Permit*. The administration of licenses and permits provides a system for monitoring wildlife harvest.

Section 13.4.5 of the *Sahtu Dene and Metis Comprehensive Land Claim Agreement* states that, "participants have the exclusive right to harvest fur bearers throughout the settlement area." In addition, sec. 13.4.6 states that RRC's may permit non-participants to trap upon terms and conditions respecting species, location, methods, quantities, seasons, and duration of harvest as may be set by the RRC. Should an RRC refuse a non-participant who is interested in trapping on non-private lands (i.e., those lands not owned by Sahtu Dene and Metis within the settlement area) on which furbearers are not being harvested by a participant of the claim, then an appeal may be made in writing to the SRRB. The SRRB has 60 days to consider the appeal and may reverse the decision of the RRC if it deems it is reasonable to do so. The SRRB decision is not subject to a review by the GNWT. Any permission to non-participants to trap furbearers within the settlement area must ensure that harvest does not exceed the total allowable for those species for which permission is granted. The non-participants' harvests are not to be included in the Sahtu Settlement Harvest Study or used in calculating the Sahtu Needs Level.

APPENDIX 2. Fur management programs in the Sahtu Settlement Area

Community Renewable Resources Councils (RRC's), the *Fur Institute of Canada*, and the Department of Resources, Wildlife & Economic Development (RWED) co-operatively manage and conduct trapper education programs in the Sahtu. These programs include training youth in land skills, humane trapping techniques, and under-ice trapping of beaver and pelt preparation. Additional funding from RWED is provided to community RRC's through the annual *Community Harvester Assistance Program* to reduce costs for harvesting activities and *Administration Grants* to defray the RRC's operating costs.

Since 1995, RWED has maintained a *Fur Pricing Program* (FPP) that guarantees a minimum price for selected prime quality wild fur including beaver at $40.00/pelt. A recent successful marketing promotion, *Genuine Mackenzie Valley Wild Fur Program,* identifies graded bundles of top-quality, humanely caught furs, from the NWT with a unique label (Francois Rossouw, RWED, pers. comm.). Beaver pelts from the Sahtu are considered by fur buyers to be of high quality - the average pelt price received by local trappers is 12% above the NWT average for the species (Table 4). Currently, there is a strong market for heavy beaver and mink (*Mustela vison*) pelts suitable for shearing. Straight-haired beaver harvested during early winter is in demand at prices below prime-fur values, but is considerably more valuable than the average price of late-season or shot beaver pelts (Angelo Pappas, *Western Canadian Raw Fur Auctions*, pers. comm.).

RWED maintains *Individual Trapper Records* and *Fur Trader Records* on the quantity and value of NWT furs sold. These records are assumed to represent most of the commercial beaver harvest. The NWT beaver harvest has fluctuated widely and the economic value of

Sahtu beaver pelts have slightly increased over the last few years (Table 4). The 2001 average price for 4.7 million beaver pelts sold in North America was about $30.00. Therefore, RWED FPP guarantees local beaver harvesters a return that is approximately 25% above the North American average.

Table 4. Annual averages for beaver pelt sales in the Sahtu Settlement Area and NWT: 1963-2001

Year[a]	Number of Pelts NWT	Pelt Value NWT ($)	Fur Sales NWT ($)	Number of Pelts Sahtu	Pelt Value Sahtu ($)	Fur Sales Sahtu ($)
2000 - 2001	n/a	40[b]	n/a	n/a	40[b]	n/a
1998 - 1999	n/a	40[b]	n/a	793[c]	40[b]	n/a
1993 - 1997	2026	24	48, 624	1029	27	5562
1988 - 1992	1828	14	25, 592	348	19	6612
1983 - 1987	3199	21	67, 179	357	20	7140
1978 - 1982	5046	23	116, 058	939	22	20, 658
1973 - 1977	4210	15	63, 150	838	15[d]	12, 570
1968 - 1972	7406	14	103, 684	1282	14[d]	17, 948
1963 - 1967	9186	11	101, 046	1371	11[d]	15, 081
Average	4862	17	82, 654	667	18	15, 048
Lowest year	1990 @1277	1964 @ 10	1990 @ 17, 878	1993 @ 89	1964 @ 10	1993 @1180
Highest year	1963 @ 10, 349	2000 @ 40	1979 @ 276, 469	1980 @ 2143	2000 @ 40	1980 @ 57, 968

[a] Fiscal year - 01 April to 31 March

[b] Includes guaranteed minimum price on prime pelts sold through Government of the NWT's Fur Pricing Program ($40.00/prime, well handled beaver pelt)

[c] Sahtu Harvest Study, Sahtu Renewable Resources Board, unpublished data.

[d] Assumes that the average pelt value for 1963 - 1977 Sahtu was the same as NWT

Source of information:

Fur Harvest Records, Government of the NWT, Dept. of Resources, Wildlife, & Economic Development, unpublished data.